

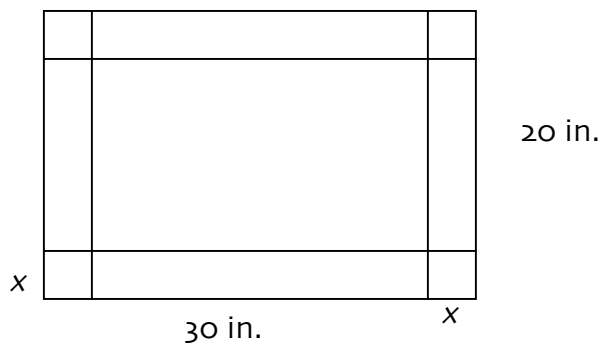
11-5: The Factor Theorem

Begin by opening your book to page 698 for the In-Class Activity. Work with a partner.

Zero-Product Theorem:

Example 1:

- a. Write a polynomial to represent the volume of the box.



- b. For what values of x is the volume exactly 0 in³?

Question: If there are two numbers that are being multiplied to get a product of 0, what can we say about at least one of the numbers?

Factor Theorem:

Example 2: Find the zeros of $P(x) = 3x^3 - 33x^2 + 90x$.

***Notice, we could have used the Factor Theorem to find the solutions to Example 1. Let's do it!

Another question: Why do we call these "zeros?"

Yet another question: What other names do we use for zeros?

Example 3: Find $P(x)$, which has zeros of -2 , 0 , and 2 .

Example 4: Find the zeros of $3x^4 - 28x^3 - 20x^2$.

Homework:

"Life is a long lesson in humility." – James M. Barrie